VERIS FLOW MEASUREMENT GROUP
TRUE PERFORMANCE IN FLOW MEASUREMENT
For the best flow measurement solution in any application, turn to Armstrong.

Our state-of-the-art flow measurement technology includes a full line of differential pressure flow elements and vortex meters, as well as VERIS Accelabar®—our proprietary meter that does not require any straight pipe lengths for installation.

Armstrong’s flow meters are designed to provide accuracy in measurement, even with the most challenging gases and liquids, to meet the demands of virtually any application in any industry.

With more than a century of in-depth, steam system expertise, Armstrong also provides the most advanced steam flow measurement technology available today.
The Unique VERIS Accelabar® Flow Meter

The VERIS Accelabar® is a unique flow meter that produces performance never before attainable in a single flow meter.

The Accelabar® is capable of measuring gases, liquids, or steam at previously unattainable flow rate turndowns—with no straight run requirements.

How the Accelabar® Works

The Accelabar® combines a unique toroidal nozzle design with the VERIS Verabar® averaging Pitot tube.

The nozzle's patented “settling distance” design accelerates, linearizes, and stabilizes the fluid's velocity profile. The Verabar® located within the nozzle then accurately measures that velocity profile.

The nozzle also significantly increases the differential pressure output, thus increasing the operating range (turndown) of the Accelabar.

The Accelabar has a linear flow coefficient with an accuracy of up to ±0.50%.

VERIS Verabar® Provides the Accuracy

The proven technology of the Verabar® delivers the accurate measurement within the Accelabar®. The Verabar®'s unique bullet shape, linear flow coefficient, solid one-piece construction, non-clog design, and signal stability make it the only design capable of producing superior performance.

Absolutely No Straight Run Required

The Accelabar® can be used in extremely limited straight run piping configurations. All necessary straight run is integral to the meter. The stabilization and linearization of the velocity profile within the throat of the nozzle eliminates the need for any upstream or downstream pipe runs.
VERIS Accelabar®

Engineering Specifications
• Liquids, gases, and steam service
• Accuracy up to ± 0.50% of rate over entire flow range
• Repeatability: ±0.050% over entire flow range
• Verified flow coefficients
• Capable of extended turndowns in flowrate
• No straight piping run requirements
• Mass or volumetric flow
• 316SS meter body and sensing element
• 1” – 12” (25.4mm – 304.8mm) in-line body sizes
• Up to ANSI600 standard & ANSI2500 upon request

Ready to Install
The Accelabar® can be furnished as a ready to install flow meter system complete with the primary element, configured transmitter, RTD, and other secondary equipment such as a flow computer or data logger.

An optional RTD can be supplied in a thermowell for density compensation of mass flow rates.

Accelabar® Face to Face Dimensions

<table>
<thead>
<tr>
<th>Meter Size</th>
<th>Face to Face Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1” (DN25)</td>
<td>7.50” (190.5mm)</td>
</tr>
<tr>
<td>Class 150#</td>
<td>8.25” (209.6mm)</td>
</tr>
<tr>
<td>Class 300#</td>
<td>8.75” (222.3mm)</td>
</tr>
<tr>
<td>Class 600#</td>
<td>N/A</td>
</tr>
<tr>
<td>PN10</td>
<td>N/A</td>
</tr>
<tr>
<td>PN16</td>
<td>10.15” (257.8mm)</td>
</tr>
<tr>
<td>PN40</td>
<td>N/A</td>
</tr>
<tr>
<td>PN63</td>
<td>11.57” (293.9mm)</td>
</tr>
<tr>
<td>PN100</td>
<td></td>
</tr>
<tr>
<td>2” (DN50)</td>
<td>8.75” (222.3mm)</td>
</tr>
<tr>
<td>Class 150#</td>
<td>9.38” (238.2mm)</td>
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<tr>
<td>Class 300#</td>
<td>10.13” (257.1mm)</td>
</tr>
<tr>
<td>Class 600#</td>
<td>11.54” (293.2mm)</td>
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<tr>
<td>PN10</td>
<td>11.78” (299.2mm)</td>
</tr>
<tr>
<td>PN16</td>
<td>12.88” (327.2mm)</td>
</tr>
<tr>
<td>PN40</td>
<td>13.35” (339.2mm)</td>
</tr>
<tr>
<td>PN63</td>
<td></td>
</tr>
<tr>
<td>PN100</td>
<td></td>
</tr>
<tr>
<td>3” (DN80)</td>
<td>13.78” (350.0mm)</td>
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<tr>
<td>Class 150#</td>
<td>14.53” (369.0mm)</td>
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<td>Class 300#</td>
<td>15.28” (388.1mm)</td>
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<td>Class 600#</td>
<td>16.10” (399.2mm)</td>
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<td>PN10</td>
<td>17.64” (452.1mm)</td>
</tr>
<tr>
<td>PN16</td>
<td>18.90” (481.0mm)</td>
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<tr>
<td>PN40</td>
<td>19.22” (501.0mm)</td>
</tr>
<tr>
<td>PN63</td>
<td>20.56” (532.3mm)</td>
</tr>
<tr>
<td>PN100</td>
<td>21.90” (571.1mm)</td>
</tr>
<tr>
<td>4” (DN100)</td>
<td>15.15” (384.8mm)</td>
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<tr>
<td>Class 150#</td>
<td>15.90” (403.9mm)</td>
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<tr>
<td>Class 300#</td>
<td>17.65” (448.3mm)</td>
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<td>Class 600#</td>
<td>18.34” (503.9mm)</td>
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<tr>
<td>PN10</td>
<td>19.39” (576.5mm)</td>
</tr>
<tr>
<td>PN16</td>
<td>20.48” (516.1mm)</td>
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<tr>
<td>PN40</td>
<td>21.58” (561.5mm)</td>
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<tr>
<td>PN63</td>
<td>22.68” (597.3mm)</td>
</tr>
<tr>
<td>PN100</td>
<td>23.77” (640.2mm)</td>
</tr>
<tr>
<td>6” (DN150)</td>
<td>19.15” (486.4mm)</td>
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<tr>
<td>Class 150#</td>
<td>19.90” (505.5mm)</td>
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<tr>
<td>Class 300#</td>
<td>21.90” (556.3mm)</td>
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<tr>
<td>Class 600#</td>
<td>23.84” (583.2mm)</td>
</tr>
<tr>
<td>PN10</td>
<td>25.57” (662.1mm)</td>
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<tr>
<td>PN16</td>
<td>27.31” (707.3mm)</td>
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<tr>
<td>PN40</td>
<td>29.05” (748.8mm)</td>
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<td>PN63</td>
<td>30.74” (799.3mm)</td>
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<tr>
<td>PN100</td>
<td>32.43” (852.3mm)</td>
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<tr>
<td>8” (DN200)</td>
<td>21.40” (543.6mm)</td>
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<tr>
<td>Class 150#</td>
<td>22.15” (562.6mm)</td>
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<tr>
<td>Class 300#</td>
<td>24.40” (619.7mm)</td>
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<tr>
<td>Class 600#</td>
<td>26.75” (702.3mm)</td>
</tr>
<tr>
<td>PN10</td>
<td>28.76” (741.3mm)</td>
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<tr>
<td>PN16</td>
<td>30.76” (808.3mm)</td>
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<td>PN40</td>
<td>32.76” (877.3mm)</td>
</tr>
<tr>
<td>PN63</td>
<td>34.76” (946.3mm)</td>
</tr>
<tr>
<td>PN100</td>
<td>36.76” (1015.3mm)</td>
</tr>
<tr>
<td>10” (DN250)</td>
<td>23.15” (588.0mm)</td>
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<tr>
<td>Class 150#</td>
<td>24.40” (619.8mm)</td>
</tr>
<tr>
<td>Class 300#</td>
<td>27.65” (702.3mm)</td>
</tr>
<tr>
<td>Class 600#</td>
<td>30.76” (808.3mm)</td>
</tr>
<tr>
<td>PN10</td>
<td>33.04” (839.4mm)</td>
</tr>
<tr>
<td>PN16</td>
<td>35.34” (900.3mm)</td>
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<tr>
<td>PN40</td>
<td>37.64” (961.3mm)</td>
</tr>
<tr>
<td>PN63</td>
<td>39.94” (1022.3mm)</td>
</tr>
<tr>
<td>PN100</td>
<td>42.24” (1073.3mm)</td>
</tr>
<tr>
<td>12” (DN300)</td>
<td>26.22” (665.9mm)</td>
</tr>
<tr>
<td>Class 150#</td>
<td>27.47” (697.7mm)</td>
</tr>
<tr>
<td>Class 300#</td>
<td>29.97” (761.2mm)</td>
</tr>
<tr>
<td>Class 600#</td>
<td>33.41” (850.6mm)</td>
</tr>
<tr>
<td>PN10</td>
<td>36.82” (935.2mm)</td>
</tr>
<tr>
<td>PN16</td>
<td>39.12” (989.2mm)</td>
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<td>PN40</td>
<td>41.42” (1054.2mm)</td>
</tr>
<tr>
<td>PN63</td>
<td>43.72” (1119.2mm)</td>
</tr>
<tr>
<td>PN100</td>
<td>46.02” (1184.2mm)</td>
</tr>
</tbody>
</table>

The Accelabar® Advantage vs. Other Flow Meters
The Accelabar® is able to overcome the limitations of other flow meters in applications that:
• Do not have sufficient fluid velocity to produce a readable signal or generate adequate turndown
• Require ±0.5% accuracy over a large range of flow rates
• Have limited or no straight piping runs before the meter’s installation point

Typical performance characteristics of the Accelabar® exceed those of traditional differential pressure, vortex, and other flow meter technologies.

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com/veris for up-to-date information.
Accurate and Reliable Technology for Measuring Gas, Liquid, and Steam

Developed from aerospace technology, the VERIS Verabar® averaging pitot flow sensor provides unsurpassed accuracy and reliability. With its solid one-piece construction and bullet shape, the clog-resistant Verabar® makes flow measurement reliable and precise.

Superior Signal Stability and Greater Resistance to Clogging

Clogging can occur in low pressure ports located in or near the partial vacuum at the rear of the sensor. The Verabar® design locates the low pressure ports on the sides of the sensor, forward of the fluid separation point and turbulent wake area. This virtually eliminates clogging and produces an extremely stable signal.

Engineering Specifications

- Liquids, gases, and steam service
- Accuracy up to ± 1.0% of rate over entire flow range (±0.75% if pipe ID is measured)
- Repeatability: ±0.10% over entire flow range
- Verified flow coefficients
- Mass or volumetric flow output
- 316SS standard sensing element
- Solid one-piece, bullet shaped design
- Pipe sizes 1.5” (38.1mm) and above
- Up to ANSI2500 upon request
- 5 year performance warranty from date of shipment

Lower Drag and Extended Turndown

The unique sensor shape reduces drag and flow induced vibration while the roughness of the Verabar®’s front surface extends its accuracy and rangeability to lower velocities.

Quality Assurance

Armstrong manufactures its own leak-proof, solid one-piece sensor. The primary goal is to provide the highest quality and most accurate sensor in the industry.

VERIS Verabar® is designed to meet or exceed applicable ANSI and ASME codes. The Verabar is available to meet B31.1, B31.3, B31.8, NACE MR-01-75, etc.

Additional QA capabilities include code welding, hydrostatic and other non-destructive testing.
The Proof of Verabar® Accuracy

Accurate Flow Coefficients
The true test of a flow measurement device is its ability to repeat its published flow coefficient within its accuracy band. Verabar® has been thoroughly tested at independent flow laboratories using multiple sensor sizes and multiple pipe sizes in both gas and liquid service.

Verabar® Model Selector

Regular Models — (Threaded Components)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Type of Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>V100</td>
<td>Tube Fitting</td>
</tr>
<tr>
<td>V110</td>
<td>V100 (Single Support)</td>
</tr>
<tr>
<td>V150</td>
<td>V110 (Double Support)</td>
</tr>
<tr>
<td>V150</td>
<td>Spring-Lock</td>
</tr>
<tr>
<td>V150</td>
<td>V150 (No opposite support required)</td>
</tr>
</tbody>
</table>

Hot Tap Models — (Threaded or Flanged Components)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Type of Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>V200</td>
<td>Threaded Screw Drive</td>
</tr>
<tr>
<td>V400</td>
<td>V200</td>
</tr>
<tr>
<td>V400</td>
<td>Flanged Screw Drive</td>
</tr>
<tr>
<td>V400</td>
<td>V400</td>
</tr>
</tbody>
</table>

Flanged Models — (Flanged Components)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Type of Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>V500</td>
<td>Flanged</td>
</tr>
<tr>
<td>V500</td>
<td>V500 (Single Support)</td>
</tr>
<tr>
<td>V510</td>
<td>V500 (Double Support)</td>
</tr>
<tr>
<td>V510</td>
<td>Flanged Spring-Lock</td>
</tr>
<tr>
<td>V550</td>
<td>V550 (No opposite support required)</td>
</tr>
</tbody>
</table>

No Calibration Necessary

The development of a verified theoretical model allows the prediction of the Verabar®’s flow coefficients. This eliminates the need for calibration tests to characterize the flow coefficients. The derivation of the theoretical model and test data is published in the Verabar® Flow Test Report.

Verabar® Applications

The Verabar® offers the widest application range of any flow sensor. It accurately measures gas, liquid and steam.

<table>
<thead>
<tr>
<th>Type</th>
<th>Gas</th>
<th>Liquid</th>
<th>Steam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>Natural Gas</td>
<td>Cooling/Chilled water</td>
<td>Saturated</td>
</tr>
<tr>
<td></td>
<td>Compressed Air</td>
<td>Boiler Feed Water</td>
<td>Superheated</td>
</tr>
<tr>
<td></td>
<td>Combustion Air</td>
<td>De-Mineralized Water</td>
<td>Main Header</td>
</tr>
<tr>
<td></td>
<td>Hydrocarbon Gas</td>
<td>Hydrocarbon Liquids</td>
<td>Custody Transfer</td>
</tr>
<tr>
<td></td>
<td>Hot Air</td>
<td>Cryogenic</td>
<td>Distribution</td>
</tr>
<tr>
<td></td>
<td>Blast Furnace Gas</td>
<td>Thermal Transfer Fluids</td>
<td>Energy Studies</td>
</tr>
</tbody>
</table>

Extended Range Applications

The Verabar’s versatile design lends itself to a wide range of applications. Contact VERIS application engineering for your special requirements.

High Pressure Design
2500# ANSI Class
6000PSI and 1000°F

Square and Rectangular Ducts

Large Stacks and Ducts
Up to 21 feet
(6 meters)

Specialized Mounting
- PVC
- Concrete
- FRP
- Cast Iron Pipe
Armstrong International is pleased to offer vortex technology for measurement of steam, liquid, and gas flows. All AVF in-line models provide multivariable measurement and mass flow output for applications in industrial and institutional environments.

The flow meter is available from ½” (15 mm) (DN 15) to 12” (300 mm) (DN 300) meter sizes handling process temps from -330°F (-200°C) to 750°F (400°C) and process connections up to ANSI Class 600 (PN 64).

Multivariable options include temperature, pressure, and velocity measurements for a fully compensated mass flow rate. Output communication is available via analog 4-20ma, HART™ protocol, Modbus, and BACnet™. 

**Features**

- Volumetric or mass flow
- Velocity, temperature, pressure measurements integral to meter body
- Energy calculation and output available
- 1.5% of rate accuracy or better
- Turndown up to 100:1
- Push button digital display
- Remote electronics available
- FM, FMC, ATEX, IECEx - Approvals Pending
- Analog, HART™, Modbus, BACnet™ communication
## AVF Specifications

### Performance Specifications

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Variable</th>
<th>Liquids</th>
<th>Gas &amp; Steam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumetric Flow Rate</td>
<td>±0.7% of rate</td>
<td>±0.5% of full scale</td>
<td>±1.0% of rate</td>
</tr>
<tr>
<td>Mass Flow Rate</td>
<td>±1.0% of rate</td>
<td>±1.0% of rate</td>
<td>±1.5% of rate</td>
</tr>
<tr>
<td>Temperature</td>
<td>±2.0°F (±1°C)</td>
<td>±2.0°F (±1°C)</td>
<td>±2.0°F (±1°C)</td>
</tr>
<tr>
<td>Pressure</td>
<td>±0.3% of full scale</td>
<td>±0.3% of full scale</td>
<td>±0.3% of full scale</td>
</tr>
<tr>
<td>Density</td>
<td>±0.3% of reading</td>
<td>±0.5% of reading</td>
<td>±0.5% of reading</td>
</tr>
</tbody>
</table>

*Mass flow rate accuracy of gas and steam is based on 50-100% of pressure range*

<table>
<thead>
<tr>
<th>Repeatability</th>
<th>Mass Flow Rate</th>
<th>±0.2% of rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumetric Flow Rate</td>
<td>±0.1% of rate</td>
<td>±0.1% of rate</td>
</tr>
<tr>
<td>Temperature</td>
<td>±0.2°F (±0.1°C)</td>
<td>±0.2°F (±0.1°C)</td>
</tr>
<tr>
<td>Pressure</td>
<td>±0.05% of full scale</td>
<td>±0.05% of full scale</td>
</tr>
<tr>
<td>Density</td>
<td>±0.1% of reading</td>
<td>±0.1% of reading</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stability Over 12 Months</th>
<th>Mass Flow Rate</th>
<th>±0.2% of rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumetric Flow Rate</td>
<td>Negligible</td>
<td>±0.1% of rate</td>
</tr>
<tr>
<td>Temperature</td>
<td>±0.9°F (±0.5°C)</td>
<td>±0.9°F (±0.5°C)</td>
</tr>
<tr>
<td>Pressure</td>
<td>±0.1% of full scale</td>
<td>±0.1% of full scale</td>
</tr>
<tr>
<td>Density</td>
<td>±0.1% of reading</td>
<td>±0.1% of reading</td>
</tr>
</tbody>
</table>

### Physical Specifications

<table>
<thead>
<tr>
<th>Wetted Materials</th>
<th>Standard</th>
<th>316L Stainless Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional</td>
<td>Carbon Steel or Hastelloy C</td>
<td></td>
</tr>
</tbody>
</table>

| Approvals (Pending)           | FM, FMC   | CLASS I, DIV. 1, GROUPS B, C, D |
|                               |           | CLASS II/III, DIV. 1, GROUPS E, F, G |
|                               |           | Type 4X and IP66, T6, Ta = -40°C to 60°C |

| ATEX                          | II 2 G Ex d IIB + H2 T6 |
|                               | II 2 D Ex tD A21 IP66 T85°C, Ta = -40°C to 60°C |

| IECEx                         | Ex d IIB + H2 T6 |
|                               | Ex tD A21 IP66 T85°C, Ta = -40°C to 60°C |

### Power Requirements

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP Option</td>
<td>12-36 VDC, 25mA, 1W max</td>
</tr>
<tr>
<td>DC Option</td>
<td>12-36 VDC, 300mA, 9W max</td>
</tr>
<tr>
<td>AC Option</td>
<td>100-240 VAC, 50/60Hz line power, 5W</td>
</tr>
</tbody>
</table>

### Output Signals

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>Alarm</td>
<td>Solid state relay, 40 VDC</td>
</tr>
<tr>
<td>Totalizer Pulse</td>
<td>50 millisecond pulse, 40 VDC</td>
</tr>
<tr>
<td>Volumetric or LP Mass</td>
<td>One analog, one totalizer pulse, HART™</td>
</tr>
<tr>
<td>Multivariable</td>
<td>Up to three analog signals, three alarms, one totalizer pulse, HART™</td>
</tr>
<tr>
<td>Multivariable</td>
<td>Modbus or BACnet™ process monitoring</td>
</tr>
</tbody>
</table>

### Display

- Alphanumeric 2 line x 16 character LCD digital display
- Six pushbuttons for full field configuration
- Pushbuttons can be operated with magnetic wand without removal of enclosure covers
- Display can be mounted in 90° intervals for better viewing
Introduction to the Insertion Vortex Flow Meter

The AVI insertion models provide all the same multivariable measurement and mass flow output features as the AVF in-line model in a robust, welded design.

The AVI is available for pipe sizes 2" (50 mm) (DN 50) and above with either flanged or NPT process connections up to ANSI Class 600 (PN64). Optional retractor tool provides easy hot-tap installation and removal.

Features

- Compensated mass flow and energy calculations for gases, liquids, and steam
- Hop tap installation does not require shut down or process interruption
- Up to ±1.5% accuracy over a wide turndown in flow rates
- Reliable construction – no moving parts
- Analog, HART®, Modbus, and BACnet™ communication
- FM, FMC, ATEX, IECEx Approvals Pending
AVI Specifications

Performance Specifications

<table>
<thead>
<tr>
<th>Variable</th>
<th>Liquids</th>
<th>Gas &amp; Steam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumetric Flow Rate</td>
<td>±1.2% of rate</td>
<td>±1.5% of rate</td>
</tr>
<tr>
<td>Mass Flow Rate</td>
<td>±1.5% of rate</td>
<td>±2.0% of rate</td>
</tr>
<tr>
<td>Temperature</td>
<td>±2.0°F (±1°C)</td>
<td>±2.0°F (±1°C)</td>
</tr>
<tr>
<td>Pressure</td>
<td>±0.3% of full scale</td>
<td>±0.3% of full scale</td>
</tr>
<tr>
<td>Density</td>
<td>±0.3% of reading</td>
<td>±0.5% of reading</td>
</tr>
</tbody>
</table>

*Mass flow rate accuracy of gas and steam is based on 50-100% of pressure range

Repeatability

<table>
<thead>
<tr>
<th>Variable</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Flow Rate</td>
<td>±0.2% of rate</td>
</tr>
<tr>
<td>Volumetric Flow Rate</td>
<td>±0.1% of rate</td>
</tr>
<tr>
<td>Temperature</td>
<td>±0.2°F (±0.1°C)</td>
</tr>
<tr>
<td>Pressure</td>
<td>±0.05% of full scale</td>
</tr>
<tr>
<td>Density</td>
<td>±0.1% of reading</td>
</tr>
</tbody>
</table>

Stability Over 12 Months

<table>
<thead>
<tr>
<th>Variable</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Flow Rate</td>
<td>±0.2% of rate</td>
</tr>
<tr>
<td>Volumetric Flow Rate</td>
<td>Negligible</td>
</tr>
<tr>
<td>Temperature</td>
<td>±0.9°F (±0.5°C)</td>
</tr>
<tr>
<td>Pressure</td>
<td>±0.1% of full scale</td>
</tr>
<tr>
<td>Density</td>
<td>±0.1% of reading</td>
</tr>
</tbody>
</table>

Response Time

Adjustable from 1 to 100 seconds

Operating Specifications

<table>
<thead>
<tr>
<th>Style Connection</th>
<th>Process</th>
<th>Rating Code</th>
<th>Ordering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression Fitting</td>
<td>2&quot; (50 mm) MNPT</td>
<td>ANSI 600#</td>
<td>CT8</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 150# flange</td>
<td>ANSI 150#</td>
<td>CF8150</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 300# flange</td>
<td>ANSI 300#</td>
<td>CF8300</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 600# flange</td>
<td>ANSI 600#</td>
<td>CF8600</td>
</tr>
<tr>
<td>Packing Gland</td>
<td>2&quot; (50 mm) MNPT</td>
<td>50 psig (3.5 barg)</td>
<td>PT8</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 150# flange</td>
<td>50 psig (3.5 barg)</td>
<td>PF8150</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 300# flange</td>
<td>50 psig (3.5 barg)</td>
<td>PF8300</td>
</tr>
<tr>
<td>Packing Gland &amp; Removable Retractor</td>
<td>2&quot; (50 mm) MNPT</td>
<td>ANSI 300#</td>
<td>PT8RR</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 150# flange</td>
<td>ANSI 150#</td>
<td>PF8150RR</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 300# flange</td>
<td>ANSI 300#</td>
<td>PF8300RR</td>
</tr>
<tr>
<td>Packing Gland &amp; Permanent Retractor</td>
<td>2&quot; (50 mm) MNPT</td>
<td>ANSI 600#</td>
<td>PT8R</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 150# flange</td>
<td>ANSI 150#</td>
<td>PF8150R</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 300# flange</td>
<td>ANSI 300#</td>
<td>PF8300R</td>
</tr>
<tr>
<td></td>
<td>2&quot; (50 mm) 600# flange</td>
<td>ANSI 600#</td>
<td>PF8600R</td>
</tr>
</tbody>
</table>

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com/veris for up-to-date information.

Armstrong VERIS Flow Measurement Group, 6315 Monarch Park Pl, Niwot, CO 80503 - USA  Phone: 303-652-8550
armstronginternational.com
Orifice Plates & Flanges

Orifice Plate for Flow Measurement

Orifice Plates are the most commonly used differential pressure measurement device and are applicable for measurements in gases, clean liquids, and low velocity steam. Orifice plates allow for relatively easy installation and replacement if necessitated by changes in process parameters or life cycle deterioration.

Armstrong supplies components for a typical orifice meter installation including flange unions, gaskets, orifice plate, and appropriate pressure tap sets.

Design and Manufacturing Standards

- Manufactured under strict control with high quality in observation with ASME and ISO 9001 certification standards
- AGA, ISA, ANSI, and API applicable codes
- Nondestructive testing and special service options available

<table>
<thead>
<tr>
<th>Product Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
</tr>
<tr>
<td>Turndown</td>
</tr>
<tr>
<td>Operating Temperature</td>
</tr>
<tr>
<td>Operating Pressure</td>
</tr>
<tr>
<td>Line Size</td>
</tr>
<tr>
<td>Beta Ratio</td>
</tr>
</tbody>
</table>

Square Edge
Concentric
Standard bore specification for clean liquid, gas, and steam.

Quadrant Edged
Used in high viscosity, low Reynolds number applications.

Eccentric Bore
Allows for passage of entrained gas or solids through the bore.

Segmental Bore
For fluids containing large and heavy sediments or solids.
Orifice Plates & Flanges

Orifice Meter Runs
Orifice meter runs are available in accordance with AGA 3 code or any other desired specification for material, size, and capacity. General configuration of orifice meter runs includes:

**Instrument Connection** – ½” (12.7mm) pipe coupling and plug are supplied on downstream tube. Additional couplings are available upon request.

**End Connection** – Ends are supplied beveled for field welding. Threaded, flanged, and mechanical connections are available upon request.

**Alignment** – Meter runs are provided with alignment holes and studs.

**Packing/Crating** – Meter runs are crated and shipped fully assembled, ready for installation.

<table>
<thead>
<tr>
<th>Orifice Plate and Meter Offerings - Model Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOP</td>
</tr>
<tr>
<td>AOU</td>
</tr>
<tr>
<td>AOUP</td>
</tr>
<tr>
<td>AOUPFR</td>
</tr>
<tr>
<td>Aoupwr</td>
</tr>
<tr>
<td>Aoptr</td>
</tr>
<tr>
<td>Aopwr</td>
</tr>
</tbody>
</table>
Armstrong Venturi Tube Flow Meter

Venturi Tube Flow Meter

Venturi tubes have long been specified and used in a multitude of flow measurement applications. The versatility of measurable fluids, line sizes, and material of construction available to a Venturi tube flow meter has made it a highly recognized differential pressure flow element.

Armstrong offers classical style Venturi tubes – short form and long form – manufactured in accordance with applicable ASME codes. Also available is the Halmi Venturi tube which features superior performance and design with shorter laying lengths and reduced cost.

<table>
<thead>
<tr>
<th>General Venturi Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy</strong></td>
</tr>
<tr>
<td><strong>Beta Ratio</strong></td>
</tr>
<tr>
<td><strong>Permanent Pressure Loss</strong></td>
</tr>
<tr>
<td><strong>Line Size</strong></td>
</tr>
<tr>
<td><strong>End Connection</strong></td>
</tr>
<tr>
<td><strong>Material of Construction</strong></td>
</tr>
<tr>
<td><strong>Operating Pressure and Temperature</strong></td>
</tr>
</tbody>
</table>

Common Applications

- Clean gases and liquids
- Potable water
- High pressure steam
- Combustion air
- Compressor surge control
- Process measurement (alcohol, ethylene, chlorine, etc.)
- Gas oxygenation
- Storm sewage
- Solids-bearing fluids
- Higher viscosity liquids

Available Models and Configurations

Classical Venturi

- In-line, insert, and eccentric designs
- Flanged, weld-in, socket weld, butt weld connections
- Meter runs

Bi-Directional Venturi

- Classical and Halmi designs
- Cast, fabricated, plastic
- In-line, insert
- Flanged, weld-in, butt weld

Halmi Venturi

- Fabricated
- In-line, insert
- Flanged, weld-in, socket weld, butt weld, threaded, grout-in, wafer
- Meter runs, static tap, low flow, elbow mount

Plastic Venturi

- Insert
- Flanged, weld-in, grout-in
- Meter runs, static tap
The ASME flow nozzle is a high performance, reliable measurement device, that can be installed in various design and material configurations with conformance to ASME MFC-3M, ASME PTC-6, and ASME PTC 19.5 codes.

### General Features

<table>
<thead>
<tr>
<th>Line Size</th>
<th>Discharge Coefficient</th>
<th>ASME Design Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2” to 24” (50.8mm to 609.6mm)</td>
<td>±2.0% wall tapped nozzle (ASME MFC standard)</td>
<td>ASME PTC-6</td>
</tr>
<tr>
<td></td>
<td>±1.0% wall tapped nozzle (ASME PTC 19.5 standard)</td>
<td>ASME PTC 19.5</td>
</tr>
<tr>
<td></td>
<td>±0.25% throat tapped nozzle (ASME PTC 6 standard)</td>
<td>ASME MFC-3M</td>
</tr>
</tbody>
</table>

| Beta Ratio           |                                                            | ISO-5167                          |
| 0.20 to 0.80         |                                                            |                                   |

| Nozzle Material      | End Connections                                          | ASME Fabrication Standards        |
| 300 series stainless steel | Flanged or Welded                  | ASME Section 1                    |
| Other materials available | Pressure Taps                                | ASME B31.1 – power piping         |

| Piping Requirements  | Wall Tap – 1D upstream, 0.5D downstream                  | ASME B31.3 – process piping       |
| ASME specified       | Throat Tap – 1D upstream, code spec’d downstream        |                                   |

### ANZF – Nozzle Flanged
Nozzle designed to be mounted between two flanges. ANZW model available to be welded-in between upstream and downstream pipe sections.

### ANZFFR – Flanged Nozzle, Flanged Meter Run
Flow nozzle machined with a holding flange. The nozzle is mounted concentrically with the process flange of two pipe sections.

### ANZWFR – Welded Nozzle, Welded Meter Run
Flow nozzle installed within a meter run by welding. Used regularly in high pressure and temperature feedwater and steam applications within power plants where flanged mounting is precluded.
PTC-6 ASME Flow Nozzle

This flow nozzle provides high accuracy and precision required by ASME PTC-6 in steam turbine testing applications. The assembly consists of a flow conditioner for added accuracy, a diffuser cone for reduced pressure loss, and either a flanged or weld-in flow nozzle. Available in line sizes 4” to 24” with perforated plate or tube bundle flow conditioner, flanged-in or weld-in end connections, and four integrally machined throat pressure taps that are precision-machined and polished. Design standard ASME PTC-6 or ASME PTC 19.5.

<table>
<thead>
<tr>
<th>Flow Nozzle Meter Offerings - Model Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHN</td>
</tr>
<tr>
<td>ANZF</td>
</tr>
<tr>
<td>ANZFFR</td>
</tr>
<tr>
<td>ANZFWR</td>
</tr>
<tr>
<td>ANZW</td>
</tr>
<tr>
<td>ANZWFR</td>
</tr>
<tr>
<td>ANZWWR</td>
</tr>
<tr>
<td>APTFFR</td>
</tr>
<tr>
<td>APTFWR</td>
</tr>
<tr>
<td>APTWFR</td>
</tr>
<tr>
<td>APTWWR</td>
</tr>
</tbody>
</table>
Armstrong Wedge Flow Meter

Accurate Measurement for Challenging Fluids
Armstrong’s Wedge Meter imparts all the benefits of differential pressure measurement in difficult fluid applications. The meter can be used with high viscosity fluids, slurries, asphalt, tar-sands, fracking fluids, spent water, sludge, bottoms flow, cement, or other contaminated or abrasive fluids.

Within the cylindrical meter body, an embedded wedge constricts flow and produces a differential pressure. The subsequent measurement from the meter can be accurate to ±0.5% and ±0.2% repeatability. This includes measurements throughout the operating range and low Reynolds numbers.

Wedge & WedgeX Key Features
- ±0.5% accuracy, ±0.2% repeatability
- Available in virtually any line size
- Numerous materials of construction including: 316SS, 304SS, CS, Hastelloy, Monel, and PVC
- Flanged ends, threaded ends, weld ends, mechanical joint, and other connection types available
- Working pressure limitations per ANSI B16.5

<table>
<thead>
<tr>
<th>Straight Run Requirements</th>
<th>Preferred Up</th>
<th>Preferred Down</th>
<th>Minimum Up</th>
<th>Minimum Down</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentric expander/reducer</td>
<td>10D</td>
<td>5D</td>
<td>5D</td>
<td>3D</td>
</tr>
<tr>
<td>One elbow</td>
<td>10D</td>
<td>5D</td>
<td>5D</td>
<td>3D</td>
</tr>
<tr>
<td>Two elbows in-plane</td>
<td>10D</td>
<td>5D</td>
<td>5D</td>
<td>3D</td>
</tr>
<tr>
<td>Two elbows out-of-plane</td>
<td>10D</td>
<td>5D</td>
<td>10D</td>
<td>3D</td>
</tr>
<tr>
<td>Partially open gate valve</td>
<td>10D</td>
<td>5D</td>
<td>10D</td>
<td>3D</td>
</tr>
</tbody>
</table>

Typical Meter Configuration

Armstrong VERIS Flow Measurement Group, 6315 Monarch Park Pl, Niwot, CO 80503 - USA Phone: 303-652-8550
armstronginternational.com
Armstrong WedgeX Flow Meter

Wedge Meter Benefits in a Compact Design
The Armstrong WedgeX meter utilizes the same technology and benefits inherent with a traditional wedge meter all within a compact, cost effective unit. The direct coupling of the transmitter to the pressure taps virtually eliminates measurement errors caused by the gauge line or plugged taps.
The WedgeX holds the same advantages in accuracy, performance, construction, and fluid capabilities as the standard wedge meter.

<table>
<thead>
<tr>
<th>Wedge Meter Model Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWMF</td>
</tr>
<tr>
<td>AWMT</td>
</tr>
<tr>
<td>AWMWFR</td>
</tr>
<tr>
<td>AWMV</td>
</tr>
<tr>
<td>AWMW</td>
</tr>
<tr>
<td>AWX</td>
</tr>
<tr>
<td>AWXT</td>
</tr>
<tr>
<td>AWXT3V</td>
</tr>
<tr>
<td>AWXTT3V</td>
</tr>
<tr>
<td>AWXTT</td>
</tr>
<tr>
<td>AWXTHTT</td>
</tr>
<tr>
<td>AWXF</td>
</tr>
<tr>
<td>AWXF3V</td>
</tr>
<tr>
<td>AWXFT3V</td>
</tr>
<tr>
<td>AWXFT</td>
</tr>
<tr>
<td>AWXFHTT</td>
</tr>
<tr>
<td>AWXW</td>
</tr>
<tr>
<td>AWXW3V</td>
</tr>
<tr>
<td>AWXWT3V</td>
</tr>
<tr>
<td>AWXWT</td>
</tr>
<tr>
<td>AWXWHHTT</td>
</tr>
<tr>
<td>AWXV</td>
</tr>
<tr>
<td>AWXV3V</td>
</tr>
<tr>
<td>AWXVT3V</td>
</tr>
<tr>
<td>AWXVT</td>
</tr>
<tr>
<td>AWXVHTT</td>
</tr>
</tbody>
</table>
VERIS Accelabar®

Quick Model Selection • RFQ

Fill in the form below, complete sections 1 through 7 and email to: veris-sales@armstronginternational.com

Requested By: ________________________________
Date: ____________________ Tag#: ____________________ E-mail: ____________________
Phone: ____________________ Fax: ____________________
Company: ____________________ Address: ____________________ City, State, Zip: ____________________

End User:
Company Name: ____________________ City: ____________________ State, Zip: ____________________

1. Enter Pipe Dimensions

Pipe Size ________ Sch ________
Pipe ID ________ Wall ________ Pipe Mat’l ________

2. Pipe Orientation

(Check one box)
□ (H) Horizontal  □ (V) Vertical

3. Enter Flow Conditions

Fluid Name: ____________________

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Maximum</th>
<th>Normal</th>
<th>Minimum</th>
<th>Units</th>
<th>Special Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Fluids</td>
<td>Pressure @ Flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature @ Flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>Specific Gravity, or Molecular Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>Specific Gravity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steam</td>
<td>VeraCalc Program can calculate Density from Temperature and Pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Select Model Accelabar 316SS

(Check one box in each category)

AFS Flanged (ANSI):
□ 150#  □ 300#  □ 600#  □ ABS Bevel for Weld
□ ATS MNPT Threaded Ends (1” and 2” meter only)

Specify Accelabar Meter Size:
□ 1” (DN25)  □ 6” (DN150)
□ 2” (DN50)  □ 8” (DN200)
□ 3” (DN75)  □ 10” (DN250)
□ 4” (DN100) □ 12” (DN300)

5. Select Instrument Head

(Check one box)

Instrument Head Connections
(Select Remote or Direct Mount Transmitter — Sold Separately)

Direct Mount Transmitter (Flanged 450°F/232°C Max.)
Remote Mount Transmitter (1/2” NPT)

Manifold Transmount Valve Regular Parallel

□ M  □ F  □ T  □ R  □ P

6. Select Instrument Valves or Manifold, RTD & Cable

(Optional)

Manifolds (Optional)

3-Valve
Soft Seat
Hard Seat

Instrument Valves (Optional)

5-Valve
Soft Seat
Hard Seat

Needle
Gate

1/2” NPT

Direct Mount
Remote Mount

F3SC (CS)  F3HC (CS)  F5SC (CS)  F5HC (CS)  C2NC (CS)  C2GC (CS)
F3SS (SS)  F3HS (SS)  F5SS (SS)  F5HS (SS)  C2NS (SS)  C2GS (SS)

7. Transmitter

Supplied By
□ Veris  □ Others

Code  RTD in Thermowell
□ H1  Standard Temperature, 500°F (260°C) Max., Explosion Resistant
□ HT  High Temperature, 900°F (482°C) Max., Moisture and Dust Resistant

Code  Connection Cable to Transmitter (Direct Mount Only)
□ XP  Explosion Resistant
□ N4  Moisture and Dust Resistant

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Fill in the form below, complete sections 1 through 7 and email to: veris-sales@armstronginternational.com

Requested By: ____________________________
Date: ____________________________
Tag#: ____________________________
E-mail: ____________________________
Phone: ____________________________
Fax: ____________________________
Company: ____________________________
Address: ____________________________
City, State, Zip: ____________________________

End User:
Company Name: ____________________________
City: ____________________________
State, Zip: ____________________________

1. Enter Pipe Dimensions or Duct Dimensions

2. Pipe or Duct Orientation
   (Check one box)
   □ (H) Horizontal  □ (V) Vertical
   □ Short Straight Run
   Consult Factory

3. Enter Flow Conditions

<table>
<thead>
<tr>
<th>Fluid Name:</th>
<th>Maximum</th>
<th>Normal</th>
<th>Minimum</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Fluids</td>
<td>Pressure @ Flow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Temperature @ Flow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>Specific Gravity, or</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Molecular Weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>Specific Gravity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steam</td>
<td>VeraCalc Program can calculate Density from Temperature and Pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Select Model
   (Check one box)

   □ V100 V110 Regular
   □ V150 Spring Lock
   □ V200 Hot Tap
   □ V400 Hot Tap
   □ V500 Spring Lock
   □ V550

5. Select Instrument Head

   Instrument Connections (Select Remote or Direct Mount. Transmitter sold separately.)

   Remote Mount Transmitter (1/2” NPT)  Direct Mount Transmitter (Flanged 450°F/232°C Max.)

<table>
<thead>
<tr>
<th>Parallel</th>
<th>Regular</th>
<th>RTD</th>
<th>Valve</th>
<th>Transmount</th>
<th>Mass Transmount</th>
<th>Manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>R</td>
<td>D</td>
<td>T</td>
<td>F</td>
<td>G</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Integral</td>
<td>Integral</td>
<td>Integral</td>
</tr>
</tbody>
</table>

6. Select Instrument Valves or Manifold (Optional)

<table>
<thead>
<tr>
<th>Needle</th>
<th>Gate</th>
<th>3-Valve</th>
<th>5-Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2NC</td>
<td>C2GC</td>
<td>F3SC</td>
<td>F5SC</td>
</tr>
<tr>
<td>C2NS</td>
<td>C2GS</td>
<td>F3HC</td>
<td>F5HC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F3SS</td>
<td>F5SS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F3HS</td>
<td>F5HS</td>
</tr>
</tbody>
</table>

7. Transmitter

   Supplied By
   □ Veris  □ Others

---

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com/veris for up-to-date information.
Vortex Meter

Fill in the form below, complete sections 1 through 5 and email to: veris-sales@armstronginternational.com

Requested By: ____________________________________________

Date: _______________ Tag#: ___________________________ E-mail: ___________________

Phone: _______________ Fax: _____________________________

Company: ____________________________ Address: ____________________________

City, State, Zip: ____________________________

End User:

Company Name: ____________________________ City: ____________________________ State, Zip: ____________________________

1. Enter Pipe Dimensions

Pipe Size _________ Sch _________

Pipe ID _________ Wall _________ Pipe Mat’l _________

2. Pipe Orientation

(Check one box)

□ (H) Horizontal □ (V) Vertical

3. Enter Flow Conditions

<table>
<thead>
<tr>
<th>Fluid Name:</th>
<th>Maximum</th>
<th>Normal</th>
<th>Minimum</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Fluids:</td>
<td>Pressure @ Flow</td>
<td>Temperature @ Flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas:</td>
<td>Specific Gravity, or Molecular Weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid:</td>
<td>Specific Gravity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steam:</td>
<td>Vortex Sizing Program can calculate Density from Temperature and Pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Special Instructions

4. AVF Inline Vortex Meter

(Check one box in each category)

Process Connection:

□ 150# Flange □ 300# Flange

□ 600# Flange □ 600# Wafer

□ PN16 □ PN40

□ PN64

Electronics:

□ NEMA 4X Enclosure

□ Remote NEMA 4X Enclosure, 50 ft cable

□ Remote NEMA 4X Enclosure, 25 ft cable

Multivariable Options:

□ Volumetric

□ Velocity, Temperature

□ Velocity, Temperature, Pressure

□ Velocity, Temperature, External Pressure

□ Energy

□ Energy, Pressure

Output:

□ One analog, frequency, one pulse, HART, LP power only

□ One analog, frequency, one alarm, one pulse, HART, DC or AC power

□ One analog, frequency, one alarm, one pulse, Modbus, DC or AC power

□ One analog, frequency, one alarm, one pulse, BACnet™, DC or AC power

□ Three analog, frequency, three alarms, one pulse, HART, DC or AC power

□ Three analog, frequency, three alarms, one pulse, Modbus, DC or AC power

□ Three analog, frequency, three alarms, one pulse, BACnet™, DC or AC power

Input Power:

□ 12-36VDC, 25mA, 1W max, loop powered, output option 1 only

□ 12-36VDC, 300mA, 9W max, output options 2, 3, 4, 5, 6, 7

□ 10-240VAC, 5W max, output options 2, 3, 4, 5, 6, 7

5. AVI Insertion Vortex Meter

(Check one box in each category)

Process Connection:

□ Compression Fitting □ Permanent Retractor

□ Packing Gland □ Removable Retractor

Connection Type (2 inch, DN50):

□ 150# Flange □ 300# Flange

□ 600# Flange □ NPT

□ PN16 □ PN40

□ PN64

Electronics:

□ NEMA 4X Enclosure

□ Remote NEMA 4X Enclosure, 50 ft cable

□ Remote NEMA 4X Enclosure, 25 ft cable

Multivariable Options:

□ Volumetric

□ Velocity, Temperature

□ Velocity, Temperature, Pressure

□ Velocity, Temperature, External Pressure

□ Energy

□ Energy, Pressure

Output:

□ One analog, frequency, one pulse, HART, LP power only

□ One analog, frequency, one alarm, one pulse, HART, DC or AC power

□ One analog, frequency, one alarm, one pulse, Modbus, DC or AC power

□ One analog, frequency, one alarm, one pulse, BACnet™, DC or AC power

□ Three analog, frequency, three alarms, one pulse, HART, DC or AC power

□ Three analog, frequency, three alarms, one pulse, Modbus, DC or AC power

□ Three analog, frequency, three alarms, one pulse, BACnet™, DC or AC power

Input Power:

□ 12-36VDC, 25mA, 1W max, loop powered, output option 1 only

□ 12-36VDC, 300mA, 9W max, output options 2, 3, 4, 5, 6, 7

□ 10-240VAC, 5W max, output options 2, 3, 4, 5, 6, 7

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com/veris for up-to-date information.
Fill in the form below, complete sections 1 through 4 and email to: veris-sales@armstronginternational.com

Requested By: ______________________________
Date: ____________________  Tag#: ____________________  E-mail: ____________________
Phone: ____________________  Fax: ____________________
Company: ____________________  Address: ____________________  City, State, Zip: ____________________

End User:
Company Name: ____________________  City: ____________________  State, Zip: ____________________

1. Enter Pipe Dimensions
Pipe Size ________  Sch ________
Pipe ID ________  Wall ________  Pipe Mat'l ________

2. Pipe Orientation
(Check one box)
□ (H) Horizontal  □ (V) Vertical

3. Enter Flow Conditions

<table>
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<tr>
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4. Primary Element

Orifice Plate:
□ Concentric
□ Eccentric
□ Quadrant Edged
□ Segmented Bore

Venturi/Flow Nozzle:
□ Flanged
□ Weld-In
□ Insert

Flange Rating (if applicable):
□ 150#
□ 300#
□ 600#
□ Other

Material of Construction:
Throat__________________________
Body__________________________

Desired Differential Pressure at Max Flow: ____________________

Desired Beta Ratio (if applicable): ____________________

Meter Run:
□ Yes
□ No

Notes:

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